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98003 UTAP

**IN THE UNITED STATES PATENT & TRADEMARK OFFICE
BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES**

Applicant: Roger Sandstrom : Examiner: Jennifer H. Gay
Serial No. 09/806,220 : Group Art Unit: 3672
Filed: May 14, 2001 :
Title: Thread Coupling For A :
Drill String For Percussive :
Rock Drilling :

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

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TRANSMITTAL OF REPLY BRIEF


Enclosed for filing is a Reply Brief, in triplicate.

The Reply Brief responds to the Examiner's Answer, dated
February 19, 2004.

Respectfully submitted,

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VA 22313-1450, on the date indicated below.**

 3/11/04
MARK P. STONE (Date of Deposit)
Reg. No. 27,954



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REPLY BRIEF

The present Reply Brief is being filed in response to the Examiner's Answer dated February 19, 2004.

1. At page 2, paragraph (7) of the Examiner's Answer, the Examiner states that Applicant's Appeal Brief did not include a statement that the grouping of appealed Claims 1 - 4 do not stand or fall together. The Examiner's statement is incorrect. Section VIII of the Appeal Brief filed on January 20, 2004

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expressly states that the rejection of the appealed claims will be argued by reference to only independent Claim 1. Moreover, the Appeal Brief presents arguments only in response to the rejections of independent Claim 1 made in the final action. Therefore, the rejections of appealed Claims 1 - 4 stand or fall together based upon the disposition of independent Claim 1 on appeal.

2. At pages 4 - 5 of the Examiner's Answer, the Examiner has withdrawn the rejection of claims raised at paragraphs 4 - 9 of the Final Action dated September 15, 2003, to reduce the issues on appeal. During a telephone discussion with Examiner Gay on February 24, 2004, the Examiner also stated that the rejections made at paragraphs 10 and 11 of the final action dated September 15, 2003 were also withdrawn, but were inadvertently omitted from the identification of the rejections withdrawn at pages 4 - 5 of the Examiner's Answer. It is noted that the Examiner's Answer does not address any of the claim rejections made in the Final Action dated September 15, 2003 other than the rejections at paragraphs 2 and 3 of the Final Action. Therefore, since Applicant has not separately argued the rejections of dependent Claims 2 - 4 in the Appeal Brief, the only outstanding rejection is that which is set forth at page 2, paragraph 2 of the Final Action dated September 15, 2003 - namely, that independent Claim 1 is rejected under 35 U.S.C. Section 103(a) as being unpatentable over DE 1170887 in view of Jansson et al (U.S. Patent No. 4,760,877).

3. The basis for the only remaining rejection of independent Claim 1 is set forth in the Examiner's Findings at pages 5 - 7 of the Examiner's Answer. The Examiner's Findings seek to establish that the two references applied to reject independent Claim 1 collectively disclose all of the individual elements recited in independent Claim 1. However, Applicant, in his Appeal Brief, argued against the combination of the two references, and not against the disclosures of the individual references. The Examiner's Answer fails to address the specific arguments advanced by Applicant, discussed as follows.

As discussed at pages 8 - 9 of Applicant's Appeal Brief filed on January 20, 2004, DE 1170887 discloses a drill tube connection having threaded couplings. The disclosure expressly advocates that use of a conical thread, and is severely critical of a cylindrical thread. An English translation of DE 1170887 was filed by Applicant in the Patent & Trademark Office on June 9, 2003. The reference states in pertinent part:

"...It is hereby known to use cylindrical round threads according to DIN 405 or a similar form for the connection of drill tubes in rotary impact drilling. For these cylindrical round threads the ratio between depth of the thread and the pitch of the thread is about 1:2. These so far used cylindrical round threads have the following disadvantages:

Firstly from a manufacturing point of view when turning such an internal thread one gets a recess at the exit of the thread which gives a substantial weakening of the drill tube exerted to impact, torsion, and bending loads at the position where the tube is most heavily loaded in bending and thus should have the strongest cross section.

A further disadvantage consists therein that the reflex

impacts hit the thread flanks sharply so that the impact energy under shear load almost entirely must be taken up by the thread flanks. That means with up to 7000 impacts per minute a substantial load which in connection with the notch effect results in accelerated wear and increased breakage risk for the drill tube connections.

In a known drill rod connection a cylindrical round thread is used in which the above mentioned ratio is substantially smaller and the reflexes hit the thread flanks in an advantageous way with smaller angle. These connections can, however, only be used for drill rods the ends of which are provided with external threads on which a connecting sleeve provided with a female thread is screwed on. When transferring this cylindrical round thread to drill tubes for rotary impact drilling the drill tubes must at the ends be provided with internal threads. Then would, however, the disadvantage of the cylindrical thread, which has already been mentioned above, arise that the recess given by the manufacturing at the thread exit would substantially weaken the drill tube in particular at the place exerted to the highest bending load.

A further substantial disadvantage of the cylindrical thread is to be seen therein that the breaking and the making of the connection at the drill operation is not quick enough and that the drilling performance therefore is deteriorated. Additionally the risk exists that the thread parts are connected obliquely and thus substantial notch effects arise which can cause breakage of the threaded connection".

[page 1, second, third, fourth, fifth and sixth paragraphs of English translation of DE 1170887].

To overcome the disadvantages associated with cylindrical threading for drill tubes, DE 1170887 advocates conical threading. [page 2, second and third full paragraphs of English translation of DE 1170887]. The disclosure of DE 1170887 continues to discuss the advantages of conical threading for drill tubes over cylindrical threading for drill tubes [page 2, third, fourth, fifth, sixth, and seventh full paragraphs of English translation of DE 1170887]. Moreover, the only independent claim in DE 1170887 expressly recites a drill tube

connection" ... characterized therein that the rod ends carry an internal thread which in a known way is conically formed" [emphasis added].

Thus, the disclosure of DE 1170887 advocates use of only conical threading in connection with drill tube connections for impact drilling, and is critical of cylindrical threading.

The rejection of independent Claim 1 combines the disclosure of DE 1170887 with Jansson et al (U.S. Patent No. 4,760,887). However, as discussed at page 9 of the Appeal Brief filed on January 20, 2004, the Jansson et al patent discloses only the use of cylindrical threading for a percussion drilling device. Jansson et al discloses, in pertinent part:

"...However, the invention is generally applicable on drill elements having cylindrical screw threads having one single entry." [Column 1, lines 30 - 32 of Jansson et al].

"In the coupling disclosed in FIG. 1, two percussion drill rods 10, 11 are joined by a coupling sleeve. The drill rods 10, 11 contain a male cylindrical screw thread 15." [Column 3, lines 3 - 6 of Jansson et al].

"The invention relates to a drill string element for percussion drilling, the element having a cylindrical screw thread having one single entry..." [Abstract of the Disclosure - Jansson et al].

Thus, the express teachings of DE 1170887 which advocate the use of conical threading for a drill string and which criticize

the use of cylindrical threading for a drill string, are exactly opposite the teaching of Jansson et al which discloses only the use of a cylindrical thread coupling for a drill string.

As a result of the contrary teachings of DE 1170887 and Jansson et al, Applicant respectfully submits that there is no suggestion in the prior art itself to combine these references in any manner rendering independent Claim 1 obvious when 1). independent Claim 1 is viewed as a whole, and 2). when the contrary individual teachings of the two combined references are considered in their entirety. As a result of the contrary teachings of the two individual references, one skilled in the art would not be motivated to selectively combine a feature of Jansson et al with DE 1170887, while disregarding the numerous contrary teachings of DE 1170887. The combination of selected features of different references advocating contrary teachings is not suggested or motivated by the prior art itself. On the contrary, the only possible basis for the selective combination relied upon to reject independent Claim 1 must be derived from the use of Applicant's own disclosure as a guide for selectively combining different features of references which are otherwise contrary in their respective teachings when considered in their entirety.

It is well established that in determining the patentability of a claim, the claim must be considered as a whole. Custom Accessories, Inc. v. Jeffrey-Allan Industries, Inc., 1 USPQ 2d

1196 (Fed. Cir. 1986) ["Casting an invention as a 'combination of old elements' leads improperly to an analysis of the claimed invention by the parts, not by the whole"]; Hartness International, Inc. v. Simplimatic Engineeing Co., 2 USPQ 2d 1826 (Fed. Cir. 1987) ["...the inquiry is not whether each element existed in the prior art, but whether the prior art made obvious the invention as a whole for which patentability is claimed."].

It is also well established that it is improper to combine prior art references to reject a claim unless there is a suggestion or motivation in the prior art itself to make the combination. Micro-Chemical, Inc. v. Great Plains Chemical Co., Inc., 41 USPQ 2d 1238 (Fed. Cir. 1997). It is improper to use Applicant's own disclosure as a guide for combining the right references in the right way. In re Fritch, 23 USPQ 2d 1780 (Fed. Cir. 1992); Orthopedic Equipment Co. v. United States, 217 USPQ 193 (Fed. Cir. 1983).

The Findings made at pages 5 - 7 of the Examiner's Answer in support of the rejection of independent Claim 1 merely recite a catalog of elements contained in the two individual applied references, and concludes, without any factual support, that it would be obvious to combine selected features of the two different references in a manner rendering independent Claim 1 obvious. However, assuming arguendo that all features of independent Claim 1 are individually disclosed in the two applied references, this does not negate the patentability of the claim

since there is clearly no suggestion or motivation in the prior art itself to combine the references in the manner applied by the Examiner. As noted, as a result of the diverse teachings of the two applied references, the only basis for combining the references as applied by the Examiner must be derived from the use of Applicant's own disclosure as a guide for combining selected features of two contrary references to reconstruct independent Claim 1, without giving full consideration to independent Claim 1 as a whole, and without considering the disclosures of the two individual references in their entireties, including their respective contrary teachings.

Applicant, in his Appeal Brief, clearly advanced the proposition that DE 1170887 and the Jansson et al patent cannot properly be combined as a result of the contrary nature of their respective teachings [Appeal Brief, p. 9]. Applicant also advanced the position that even if all features of independent Claim 1 are disclosed in separate prior art references, this does not negate the patentability of the claim in the absence of a suggestion or motivation in the prior art itself to make the combination [Appeal Brief, p. 7]. The Examiner's Answer fails to respond to this line of argument, but instead presents a catalog of the different elements disclosed by the two individual prior art references applied to reject independent Claim 1. The Patent & Trademark Office simply cannot pick and choose which elements of a reference it will selectively combine with a different reference to support a rejection of a claim, while disregarding

any other elements or teachings of a reference which are inconsistent with the combination or the rejection of the claim.

The Examiner's Answer, at page 8, paragraph (11) states: "...The Examiner notes that applicant is arguing the references individually when they have been applied under 35 USC 103 thus must be argued as combined...". Applicant respectfully disagrees with this statement. It is Applicant who is arguing the patentability of independent Claim 1 based upon an improper combination of two applied references, while it is the Examiner who is arguing the individual applied references by providing a catalog of elements of each of the two references and combining selected features of the references without establishing any motivation or suggestion in the prior art to make the combination.

The Examiner's Answer, at page 9, states: "...The examiner notes that she has not relied upon applicant's teachings as bases for the above obviousness rejection but has provided motivation from the secondary reference; column 3, lines 17 - 19 of Jansson et al and column 4, lines 13 - 29 of Yao". The reference to Yao is not relevant to the rejection of independent Claim 1 since Yao has been applied only to the rejection of dependent Claims 2 - 4. The disclosure of Jansson et al at Column 3, lines 17 - 19 does not provide any suggestion or motivation for the combination of selected features from references advocating contrary teachings,

while disregarding features of the references that are contrary to the combination.

4. The Examiner's Answer, at pages 4 and 7 - 8, discusses the rejection of dependent Claims 2 - 4. As noted above, Applicant has elected to argue only independent Claim 1 in this Appeal, and the allowance of dependent Claims 2 - 4 will depend upon the allowability of independent Claim 1. Therefore, it is unnecessary to address the single outstanding rejection of dependent Claims 2 - 4.

5. Applicant respectfully submits, for the reasons discussed during the prosecution of this patent application, in the previously filed Appeal Brief, and in the present Reply Brief, that independent Claim 1 is allowable over the one remaining prior art rejection applied against that claim. The allowance of independent Claim 1 will result in the allowance of dependent Claims 2 - 4, at least for the same reasons as independent Claim 1.

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Applicant submits that each of the appealed claims is allowable, and requests that the single remaining outstanding

prior art rejection of independent Claim 1 addressed in the
Examiner's Answer be reversed.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "Mark P. Stone". The signature is fluid and cursive, with a long horizontal stroke at the end.

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